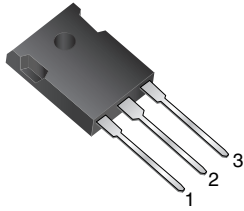


## Dual Common Cathode Schottky Rectifier


**TO-3P (TO-247AD)**


### FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, or polarity protection application.

### MECHANICAL DATA

**Case:** TO-3P (TO-247AD)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** as marked

**Mounting Torque:** 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 30 A
$V_{RRM}$	35 V, 45 V, 60 V
$I_{FSM}$	350 A
$V_F$ at $I_F = 30 A$	0.50 V, 0.56 V
$T_J$ max.	150 °C
Package	TO-3P (TO-247AD)
Circuit configurations	Common cathode

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	M6035P	M6045P	M6060P	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	35	45	60	V
Maximum average forward rectified current at (fig.1)	$I_{F(AV)}$	total device			A
		per diode			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	350			A
Peak repetitive reverse current at $t_p = 2\ \mu s$ , 1 kHz per diode	$I_{RRM}$	2.0			A
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000			V/ $\mu s$
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +150			°C



**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	M6035P	M6045P	M6060P		UNIT	
			TYP.	MAX.	TYP.	MAX.		
Instantaneous forward voltage per diode	$V_F$ <sup>(1)</sup>	$I_F = 10\text{ A}$ $T_J = 25\text{ }^\circ\text{C}$	0.42	-	0.43	-	V	
			$I_F = 20\text{ A}$	0.49	-	0.52		-
			$I_F = 30\text{ A}$	0.54	0.60	0.59		0.64
		$I_F = 10\text{ A}$ $T_J = 125\text{ }^\circ\text{C}$	0.31	-	0.33	-		
			$I_F = 20\text{ A}$	0.42	-	0.47		-
			$I_F = 30\text{ A}$	0.50	0.55	0.56		0.60
Reverse current per diode	$I_R$ <sup>(2)</sup>	$V_R$ $T_J = 25\text{ }^\circ\text{C}$	135	600	240	600	$\mu\text{A}$	
			$T_J = 125\text{ }^\circ\text{C}$	110	160	140	160	$\text{mA}$
Typical junction capacitance	$C_J$	4.0 V, 1 MHz	1150	-	1090	-	$\text{pF}$	

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	M6035P	M6045P	M6060P	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$		2.0		$^\circ\text{C/W}$

**ORDERING INFORMATION** (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
M6045P-E3/45	6.14	45	30/tube	Tube
M6060P-E3/45	6.14	45	30/tube	Tube

**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

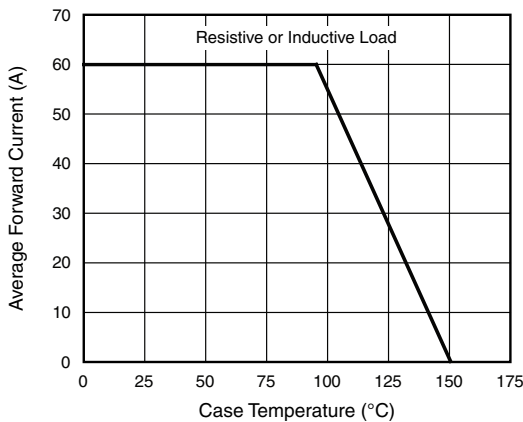


Fig. 1 - Forward Current Derating Curve

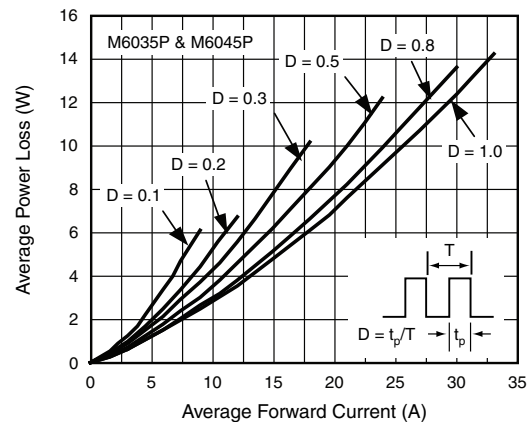


Fig. 2 - Forward Power Loss Characteristics Per Diode

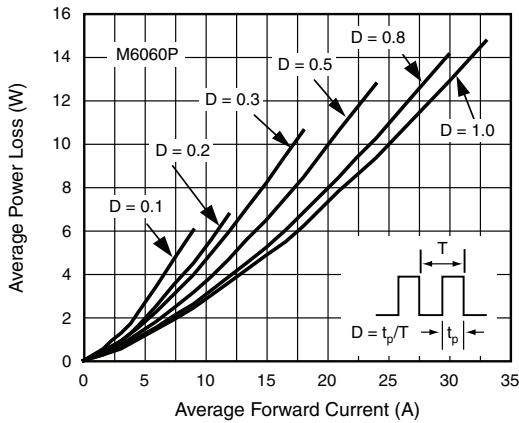


Fig. 3 - Forward Power Loss Characteristics Per Diode

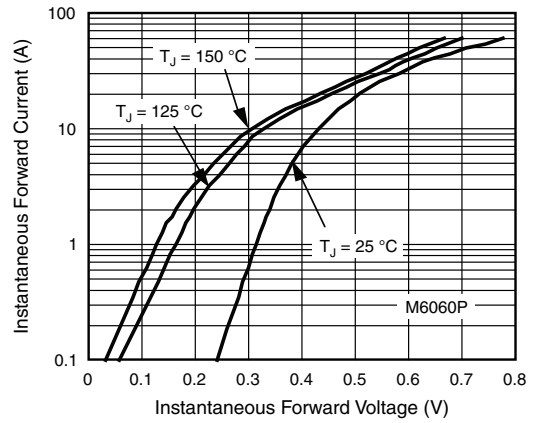


Fig. 6 - Typical Instantaneous Forward Characteristics Per Diode

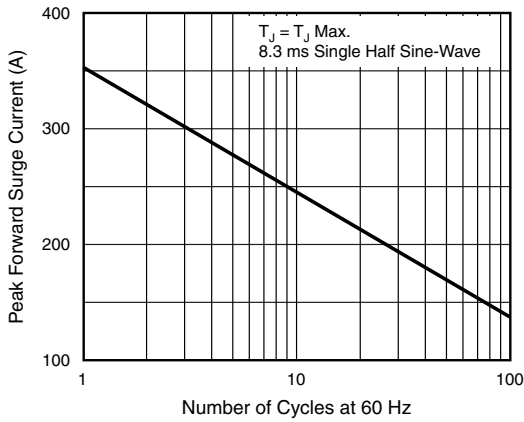


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

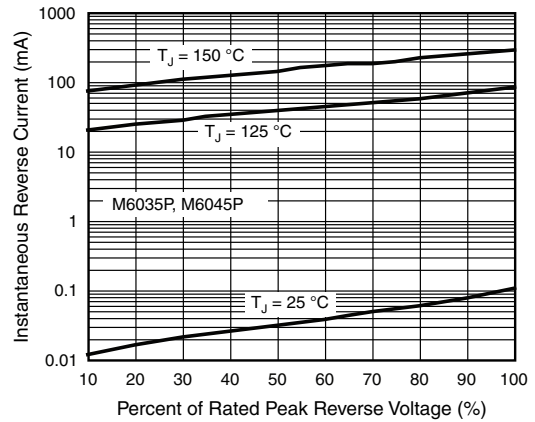


Fig. 7 - Typical Reverse Characteristics Per Diode

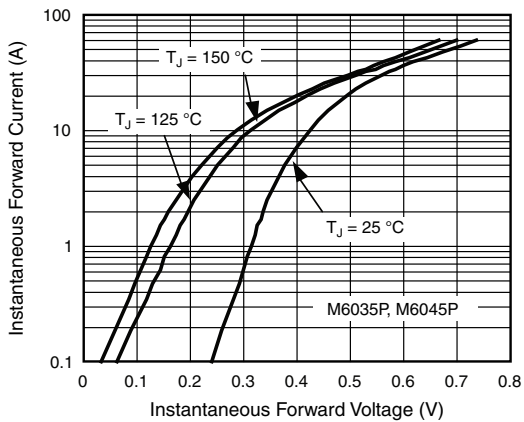


Fig. 5 - Typical Instantaneous Forward Characteristics Per Diode

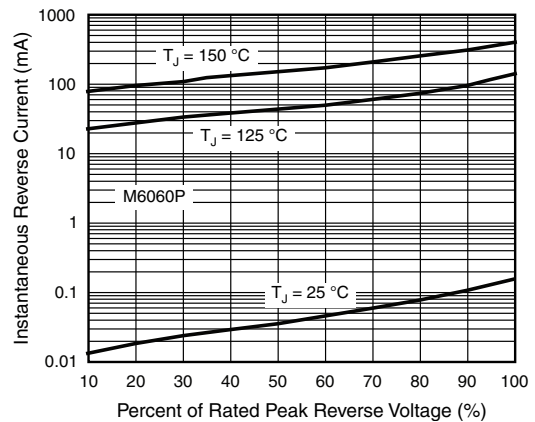


Fig. 8 - Typical Reverse Characteristics Per Diode

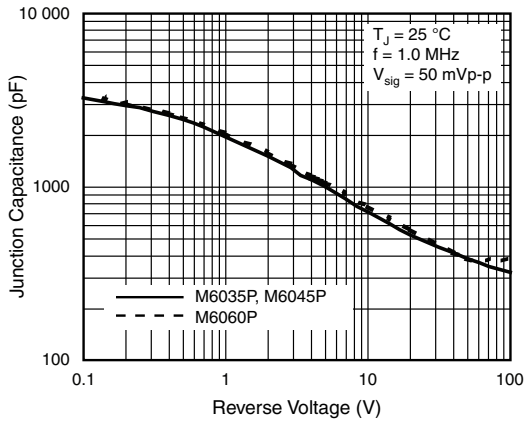


Fig. 9 - Typical Junction Capacitance Per Diode

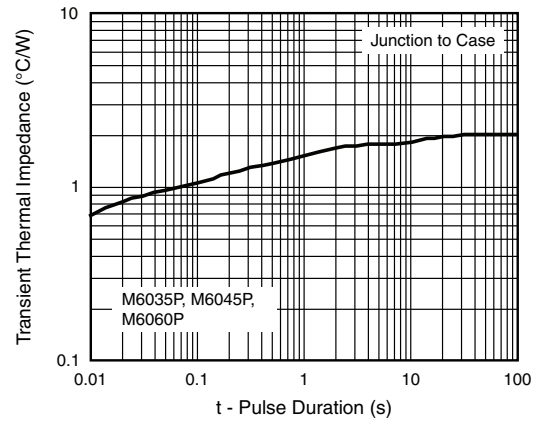
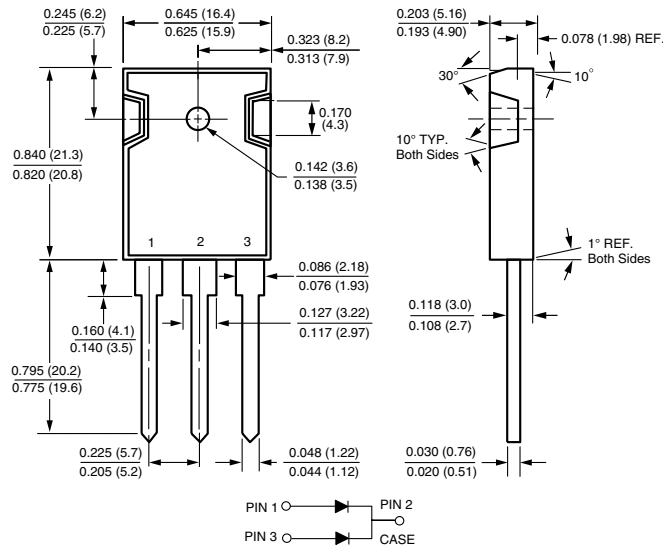


Fig. 10 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### TO-3P (TO-247AD)





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